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ABBREVIATIONS

EPG	European participating government
SABCA	Societe Anonyme Belge de Construction Aeronautiques
USAF	U.S. Air Force

Item 546-D
GAI 1.13: PSAD-81-3
OCT 20 1980

BY THE U.S. GENERAL ACCOUNTING OFFICE

Report To The Secretary Of Defense

COMPLETED

Review Of Selected Negotiated Contracts Under The F-16 Multinational Aircraft Program

ORIGINAL

GAO found over 99 percent of 20 negotiated procurement actions, valued at about $3 billion, to be reasonably priced. GAO believes $14 million of this amount is potentially overpriced due to ineffective use of available data; reliance upon inaccurate, incomplete, or noncurrent data; and poor procurement practices.

GAO also believes a postnegotiation contract change, which changes a cost overrun sharing ratio, lacks legal sufficiency and will result in a contractor's receiving several million dollars in unwarranted cost reimbursement.

(44)

PSAD-81-3
OCTOBER 17, 1980

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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

PROCUREMENT AND SYSTEMS
ACQUISITION DIVISION

B-200193

The Honorable Harold Brown
The Secretary of Defense

Attention: Assistant for Audit Reports

Dear Mr. Secretary:

As part of our continuing effort to evaluate the Department of Defense's effectiveness in pricing noncompetitive contract prices, we reviewed 20 contract actions, valued at over $3 billion, associated with the F-16 multinational aircraft program. These actions involved contracts and subcontracts for the airframe, avionics, and engines. Our objectives were to (1) determine if prices negotiated by the Department were reasonable, considering the information available to the contractors at the time of price negotiation, (2) identify the cause(s) of any overpricing, and (3) suggest corrective actions. The scope of our review is discussed in appendix I.

We found overpricing of about $14.2 million, or 0.5 percent of the amount reviewed. Of this amount, we believe about $6 million attributable to subcontract price options exercised or to be exercised may be subject to recovery under the Truth-in-Negotiations Act (P. L. 87-653). We also found that, when the prime contract cost sharing ratio for overruns on the first 301 U.S. Air Force (USAF) aircraft was reduced from 100 percent to 70 percent, no adjustment was made in the contractor's profit allowance even though it had received an additional $51 million to assume full risk for overruns. Based on the amount of contractor projected cost overrun experienced through March 1980, this could result in the contractor's receiving unintended reimbursement of about $13.3 million.

Considering the magnitude of the F-16 program; the technical, administrative, and political complexities of the program; and the fact that the aircraft are being delivered on schedule and within target prices, we believe that USAF, which had the primary management responsibility; the prime contractors; and the many subcontractors involved were generally successful in negotiating reasonable prices. We did note three circumstances from a contracting point of view that, in our opinion, contributed to the negotiation of reasonable prices:

1. There was a sense of urgency on the part of the United States to win the European business.

2. The aerospace industry was economically depressed when the quotes were obtained.

3. Having the economic purchasing power of 653 aircraft in hand and a practically assured 998 aircraft program gave the prime contractor and the first tier subcontractors excellent negotiating leverage as evidenced by the ability to negotiate firm fixed-price subcontracts for a 998 aircraft buy.

RESULTS OF PRICING REVIEWS

The $14.2 million in overpricing resulted from situations in which

--sufficient cost data was available to the contracting officer to have supported the negotiation of a lower price or

--accurate, complete, and current data was not made available to the contracting authority, resulting in overpricing that is potentially subject to downward adjustment under Public Law 87-653.

The following schedule summarizes the contracts and subcontracts we reviewed and the amounts of possible defective and other overpricing that we identified.

	Amount reviewed	Assessment: Total over-priced	Assessment: Possible defective pricing	Assessment: Other
	(millions)			
General Dynamics, Ft. Worth Division, prime contractor for airframe and avionics:				
348 European aircraft	a/$ 817.6	a/$10.0	$ 9.2	$ .8
301 option priced aircraft	1,163.0	-	-	-
Total prime contract	a/1,980.6	10.0	9.2	.8
Percentage of overpricing		.5		
Subcontractors/coproducer:				
Kaiser Aerospace and Electronics, California	b/17.1	1.0	1.24	-
Honeywell Corporation, Minnesota	6.9	.7	1.23	-
Eldec Corporation, Washington	2.9	-	-	-
Societe Anoyme Belge de Constructions Aeronautiques, Belgium	104.9	3.2	2.11	1.87
Signaalapparation, the Netherlands	20.3	-	-	-
Kongsberg Vaapenfabrikk, Norway	16.8	.7	1.06	-
Marconi Avionics Limited, England	c/1.8	.2	.25	-
Raufoss, Ammunijonfabrikken, Norway	5.3	-	-	-
Nea Lindberg, Denmark	15.5	-	-	-
Per Udsen, Denmark	13.1	.1	.16	-
Canadian Marconi, Canada	2.7	1.5	-	2.63
Upper tier contractor's overhead and profit	-	3.2	-	-
Total subcontracts	d/207.3	d/10.6	d/6.05	4.50
Percentage of overpricing		5.2		
Pratt & Whitney Aircraft Group, United Technologies, Florida, prime contractor for engines:				
Subcontractors/coproducer:				
Philips Gloeilampenfabrieken, the Netherlands	141.7	-	-	-
Fabrique Nationale, Belgium	815.0	-	-	-
Total subcontracts	956.7	-	-	-
Total	$3,144.6	e/$14.2	e/$8.85	$5.30
Percentage of overpricing		.5		

a/Amount excludes $896 million of unreviewed subcontracts and related overhead and profit of $246.5 million.

b/Amount excludes amount of Nea Lindberg subcontract below.

c/Amount represents cost of a single component reviewed versus the $61.1 million subcontract.

d/Amount is for the 998 aircraft program stated in January 1975 dollars.

e/This column doer not add because $6.4 million of overpricing included in both prime contract and subcontract/coproducer amounts has been deleted to avoid duplication.

The overstatement in the prices for the 348 European aircraft was attributable to:

	Amount (millions)
Understatement of inplant materials cost due to failure to allocate nonrecurring costs (See app. I, pp. 6 and 7.)	$-2.0
That portion of the subcontract overpricing attributable to the European aircraft buy (See app. I, pp. 9 and 10.)	9.8
Overstatement of materials overhead attributable to the new overstated inplant materials and subcontracts (See app. I, p. 10.)	.4
General and administrative expenses allocated to the net overstated inplant materials and subcontracts (See app. I, p. 10.)	.5
Contractor profit allocable to overstated costs and omitted savings (See app. I, p. 10.)	1.3
	$10.0

All nonrecurring inplant materials costs are being charged to the USAF program. Since the contractor supplies inplant materials to its European subcontractors, we believe that the European participating government (EPG) program should bear a pro rata share of these costs.

For the subcontracts that we reviewed, essentially all of the $6.1 million in potential defective pricing we identified resulted from failure to audit the vendors' proposed materials costs. The remaining $2.6 million in overpricing resulted from poor procurement practices. We believe that similar overpricing may exist in the $896 million worth of subcontracts not included in this review. (See app. I, p. 5.)

Our determination of the reasonableness of pricing of the European coproduction subcontracts depended on the workability of a Technical Agreement to a Memorandum of Understanding between the United States and EPGs. We received the full cooperation of the Supreme Audit Institutions and Defense Audit Institutions of EPGs throughout

our review. We believe that this demonstrates the workability of such an arrangement.

REDUCTION OF PRIME CONTRACTORS' RISK ON CONTRACT OVERRUNS

We found that USAF, without consideration, modified contract F-33657-75-6-0310 ECP0006's cost overrun sharing ratio from 0 percent Government 100 percent contractor to 30 percent Government 70 percent contractor. The contractor was previously granted an additional $51 million to assume 100 percent of the risks for overruns. While USAF contends this was done in order that change orders for all customers --USAF, EPGs, and third-country sales--could be negotiated on the same basis, it does not explain making the change without consideration. As of March 30, 1980, we estimate this gratuitous change, which in our opinion is void for lack of consideration, could provide the contractor with an an additional $13.3 million in cost reimbursement or profit after considering cost overruns incurred to that time. Our computation of this additional cost reimbursement or profit is shown in appendix I.

RECOMMENDATIONS

We recommend that the Secretary of Defense:

--Determine whether the Government is entitled to a price adjustment on the subcontracts for the 348 EPG buy and the prospective 400 USAF aircraft buys, if executed, as provided for by the defective pricing clause included in the prime contract and subcontracts.

--Review additional coproduction subcontract costs, particularly materials costs, that have not been audited and initiate appropriate action for postaward audit in those instances in which costs meet the dollar criteria set forth in Public Law 87-653.

--Determine whether the amount per aircraft being recouped from EPGs for nonrecurring costs includes contractor inplant materials nonrecurring costs being charged to the USAF contract but excluded from the EPG contract.

--Direct the Secretary of the Air Force to (1) treat the change as void by adjusting contract documents to reflect the reversion to the original

0/100 cost overrun sharing ratio and negotiate a method for allocating cost overruns between basic ECP0006 and changes or (2) negotiate an equitable consideration from the contractor in return for the change to a 70/30 cost overrun sharing ratio on the basic ECP0006.

The details of our findings have been presented and discussed with responsible USAF and contractor officials and representatives of the European Supreme Audit Institutions, and their comments have been incorporated as appropriate. USAF disagrees with our findings relative to their actions on ECP0006 and the contractors disagree with essentially all of our findings. Our reasons for continuing to believe our findings are valid are set forth in detail in appendix I.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the vice president for finance and accounting, General Dynamics, Ft. Worth Division; the Director, Office of Management and Budget; the Secretary of the Air Force; the Commander, Aeronautical Systems Division, Wright-Patterson Air Force Base; the Director, Defense Contract Audit Agency; and the Supreme Audit Institutions of Norway, Denmark, Belgium, and the Netherlands.

We would appreciate receiving your comments on the matters discussed in this report and would be happy to discuss any questions that you may have.

Sincerely yours,

W. H. Sheley, Jr.
Acting Director

CONTRACT PRICING LAWS, REGULATIONS, AND PROCEDURES

Department of Defense policies and procedures on pricing noncompetitive contracts are defined in the Defense Acquisition Regulation, which implements the Armed Services Procurement Act of 1947 requirements (10 U.S.C. 2301 et seq.). The policies and procedures cover (1) obtaining certified cost or pricing data from the contractor to support proposed costs, (2) preparing for contract negotiations, and (3) conducting negotiations and preparing a record of them.

The Truth-in-Negotiations Act (P.L. 87-653) and Defense Acquisition Regulation provide that, with some exceptions, contractors will submit cost or pricing data to support proposed prices for noncompetitive contracts expected to exceed $100,000. The Defense Acquisition Regulation also provides, in some cases, that prime contractors will obtain support for estimated costs of proposed subcontracts with subcontractor cost or pricing data. Prime contractors must certify that, at the time of prime contract negotiations, the data submitted, including applicable subcontract data, was accurate, complete, and current.

Estimated contracts costs are normally categorized by direct materials, direct labor, other direct costs, and various indirect expenses. The Defense Acquisition Regulation states that cost or pricing data consists of all facts existing up to the time of agreement on price, which prudent buyers and sellers would reasonably expect to significantly affect price negotiations. This includes such factors as vendor quotations; nonrecurring costs changes in production methods; production or procurement volume; unit cost trends, such as those associated with labor efficiency; make-or-buy decisions; or other management decisions which could reasonably be expected to significantly affect costs under the proposed contract.

It is Defense's policy to procure supplies and services from responsible sources at fair and reasonable prices calculated to result in the lowest overall costs to the Government. Each contracting officer is responsible for performing or having performed all administrative actions necessary for effective contracting. The contracting officer is expected to use all appropriate managerial tools, such as the advice of specialists in the fields of contracting, finance, law, contract audit, and price analysis. The Defense Acquisition Regulation requires, for noncompetitive contracts over $100,000, cost analyses of the data submitted in support of the proposed price, unless adequate information is available to determine the reasonableness of the price. Cost analysis is

the review and evaluation of a contractor's cost or pricing data and the judgmental factors applied in estimating the cost of performing the contract, assuming reasonable economy and efficiency. It is usually performed by Defense auditors and by technical personnel from the Defense Contract Administration Service offices or the military services.

The results of each analysis are submitted in an advisory report to the contracting officer for use in developing the Government's price objective.

Meetings are held between the contracting officer or the contracting officer's representative and the contractor to discuss the difference between the proposed price and the Government's negotiation objective and to decide on a final price. The Defense Acquisition Regulation requires that the contracting officer prepare, or have prepared immediately upon completion of negotiations, a memorandum of negotiations setting forth the principal elements considered during negotiations. If cost or pricing data was submitted and a certificate obtained, the memorandum must show the extent of any nonreliance on the contractor's cost or pricing data in deciding on the final price.

The contract must include a clause giving the Government a right to reduce the contract price if the price was increased because the contractor submitted or identified data that was not accurate, complete, or current (defective data).

SCOPE OF REVIEW

We made our review at the F-16 System Program Office and the F-100 Joint Engine Project Office, Wright-Patterson Air Force Base, Ohio; the Contract Administrative Services--Europe, Brussels, Belgium; the General Dynamics Corporation, Ft. Worth, Texas; Marconi Avionics, Ltd., Kent, England; the subcontractors identified in our letter; and the Pratt & Whitney Aircraft Group of United Technologies Corporation, West Palm Beach, Florida, and Brussels, Belgium. We were also assisted by the Defense Contract Audit Agency and its resident representatives at the U.S. prime contractors' suboffices, Brussels, Belgium; the Supreme Audit Institutions and the defense audit agencies of Belgium, Norway, Denmark, and the Netherlands; the Defense Contract Administrative Service; and the U.S. Air Force Plant Representative Office at General Dynamics and Pratt & Whitney.

EUROPEAN AIRCRAFT

The negotiation of ECP0006 established firm pricing arrangements for the 4 European participating governments' (EPGs') 348 F-16 aircraft program. Price agreement was reached on November 17, 1977, between General Dynamics and USAF. The price was incorporated into General Dynamics' prime contract F33657-75-C-0310 by Supplemental Agreement P00400 signed May 1978. A summary of the negotiated fixed-price-incentive-firm pricing agreement is shown below.

ECP0006 Pricing Arrangement

	Amount	Percent
	(Government then-year dollars	(note a))
Target cost	$1,710,751,590	100.00
Target profit	249,317,315	14.57
Target price	$1,960,068,905	114.57
Ceiling price	$1,960,068,905	114.57
Incentive sharing rates (Government/contractor):		
Underrun	70/30	
Overrun	0/100	

a/Reflects estimated inflation projected from the base period (July 1974) using indexes stated in contract -0310.

Two unique features of the ECP0006 negotiations were the not-to-exceed price established with General Dynamics for the EPG aircraft and the requirement that 40 percent of the procurement contract value be subcontracted to firms in EPG countries.

The not-to-exceed price was based on the U.S./European coproduction of 650 USAF aircraft and 350 EPG aircraft and was developed before any contracts were awarded to European industry. It became a primary factor in ECP0006 negotiations and led directly to the 0/100 Government/contractor incentive sharing ratio whereby the contractor accepted full responsibility for any cost overruns.

The coproduction requirements coupled with the contractual not-to-exceed price for the 348 EPG aircraft created administratively complex contractual situations which had to be resolved in terms of equity and political acceptability

during the pricing of ECP0006. Both the use of the English language and U.S. procurement laws and regulations were program requirements. While the latter unquestionably contributed to USAF's, General Dynamics', and its subcontractors' abilities to execute contracts, many opportunities still existed for misunderstandings and differences among the U.S. contractors, coproducers, and the U.S. reviewing authorities.

An analysis of the pricing of the F-16 aircraft program involved obtaining an understanding of the sequence and interdependence of the individual procurement actions and numerous judgmental decisions. Insight into the background and process by which coproduction prices were established was also required.

The sequence of major procurement actions related to ECP0006 were as follows:

Procurement action	Date
Contract price established for the full-scale development aircraft plus firm option prices for 301 USAF production aircraft. Also, a not-to-exceed price was established for 350 (note a) EPG aircraft	Jan. 13, 1975
71 subcontractor prices established including European coproducers	Various--prior to Nov. 17, 1977
Contract price established for the 348 European aircraft	Nov. 17, 1977

a/Later reduced to 348 aircraft.

It should be noted that the contractual not-to-exceed price for the EPG aircraft was establisned in January 1975, almost 2 years prior to negotiating a final price and prior to negotiating the European coproduction subcontracts. The January 13, 1975, contract required that 40 percent of the production value of the EPG contract be placed with the EPG contractors.

Assessment

The negotiated price was lower than the not-to-exceed price and met the coproduction requirement.

A summary of our analysis of the negotiated target price reviewed is shown below. The breakdown by cost element

represents USAF's view of the negotiation and may differ from the contractor's.

Cost element	Amount reviewed (note a)	Assessment: Reasonably priced Amount	Reasonably priced Percent	Overpriced Amount	Overpriced Percent
	(millions)			(millions)	
Labor	$ 69.5	$ 69.5	--	$ -	-
Overhead	114.8	114.8	-	-	-
Material:					
Inplant	160.8	151.0	93.9	9.8	6.1
Miscellaneous	5.0	5.0	100.0	-	-
Subcontracts	227.5	217.7	95.6	9.8	4.4
Material overhead	19.3	18.4	95.3	.9	4.7
	412.6	392.1	95.0	20.5	5.0
General & administrative and other charges	96.2	94.9	99.0	1.3	.1
Adjustments	19.6	19.6	100.0	-	-
Target cost	712.7	690.9	97.0	21.8	3.0
Target profit	104.9	101.7	96.9	b/3.2	3.1
Target price	c/$817.6	$792.6	96.9	$25.0	3.1

a/All amounts stated in Government then-year dollars.

b/We believe profit could be overstated as much as $51.3 million. (See pp. 11 to 15.)

c/Excludes $896.0 million of subcontracts not reviewed and $42.1, $60.0, and $144.4 million for material overhead, general and administrative expense, and profit associated with the unreviewed subcontracts. These amounts would raise the value to the negotiated price of $1,960.1 million.

Reasonably priced

We believe that 97.1 percent of the value of ECP0006 reviewed was reasonably priced; that is, the price negotiated was based on current, accurate, and complete cost or pricing data and that this data was used effectively by the negotiating parties. A major part of our review effort focused on the costs incurred by the prime contractor. We also specifically addressed areas in which we believed inequities could arise in cost allocations between EPG aircraft and USAF aircraft. We were specifically concerned because the firm not-to-exceed price had been established prior to having any cost experience for the coproduced items. Also, the EPG contract was essentially a firm fixed-price contract, whereas the exercisable options for the USAF aircraft were in an incentive-priced contract.

Although we considered that (1) the concurrent U.S. and European production was flowing into one U.S. and two European aircraft assembly plants, (2) parts and components from each source were going on both aircraft, (3) the ultimate end use for a part depended on estimated production rates when the costs were proposed, and (4) the actual costs were being recorded as proposed, we found no inequities in the cost allocation methods except as noted on pages 8 and 9.

Subcontracts with 71 subcontractors including 35 European coproducers represented 65.7 percent of the negotiated cost. We found the proposed amounts agreed with the subcontract prices. A selective review of individual subcontracts is discussed on pages 15 to 35.

Overpriced

We believe $25 million, or 2.9 percent of the value of ECP0006 reviewed, is overpriced for the reasons discussed below.

Inplant material

Inplant materials include (1) purchased parts, (2) standard hardware, (3) raw materials, and (4) outside production. Outside production includes subcontracted machining and special processing of raw material, as well as some assembly of detailed parts. Proposed inplant material cost included all EPG program requirements for General Dynamics, as well as for three of the six direct European subcontractors.

About $175 million was proposed for this cost element, which represented about 10 percent of the proposed costs. We

question about $9.8 million of negotiated costs: $11.8 million unidentified adjustments and a $2.0 million understatement for nonrecurring costs. This represents about 6 percent of the $161 million considered by USAF as negotiated for inplant materials.

Values for each of the inplant materials categories were first developed on a 998 quantity basis. Values for the USAF and EPG aircraft programs were then derived separately based on appropriate quantities for each program by fiscal year. The proposal starting point in all cases was a bill of materials subjected to some or all of the following adjustments:

1. Standard unit price adjustment--reflects the variance between full-scale development values and actual purchase order values for the first production quantity.

2. Cost improvement curve--approximates price breaks for production quantities based on vendor quotations.

3. Deescalation--converts bill-of-materials values to January 1975 dollars.

4. Identifed adjustments--add known requirements not included in the bill-of-materials and delete items included elsewhere in the materials estimate.

5. Unidentified adjustments--reflect judgmental estimate of required items not yet released for procurement and not yet included in the bill of materials.

6. Material usage variance--provides for scrap, rework, and other such manufacturing costs.

7. Allocated manufacturing material--provides for uncontrolled, consumable manufacturing supplies.

8. Freight--provides for incoming freight costs for materials routed to General Dynamics.

Unidentified adjustments

These adjustments were intended to account solely for unknown but expected requirements changes and undefined but expected additions to the bill of materials, which was known to be incomplete according to the proposal and our discussions with General Dynamics officials. Amounts were proposed for all inplant material categories except outside production,

and they were derived using judgmentally estimated percentages. The adjustment in each case was an increase.

General Dynamics proposed increases of about 6 percent for purchased parts, 22 percent for standard hardware, and 5 percent for raw materials. The Defense Contract Audit Agency classified all proposed amounts for unidentified adjustments as unsupported costs, noting that requirement changes could result in cost decreases as well as increases. USAF considered about $11.8 million negotiated for unidentified adjustments, including a material usage variance, allocated manufacturing material, and freight.

Assessment--General Dynamics had no documentation to support the percentages proposed for the cost element and USAF had no documentable basis for accepting the amounts. Both parties said they were certain the bill of materials was incomplete and judgmentally negotiated an amount to allow for the incompleteness.

While General Dynamics provided us with documentation to partially support its position that its bill of materials was incomplete, there was no way of knowing at the time of negotiation the degree of incompleteness or the dollar value to assign. Since neither General Dynamics nor USAF had any factual data to support their judgment on the amount negotiated, we have no basis for assessing the price.

Nonrecurring costs

General Dynamics proposed about $4.7 million (January 1975 dollars) of inplant materials nonrecurring costs for the 998 aircraft program. No part of these costs, however, was proposed for the EPG program. Since all inplant materials were considered to be domestically produced, all the related nonrecurring costs were proposed as charges to the USAF program. These costs include configuration management, special tooling, and so forth.

Assessment--We believe the EPG program should bear a pro rata share of nonrecurring inplant materials costs. The fact that General Dynamics supplies most of these materials to its direct European subcontractors demonstrates a direct cost-benefit relationship between the nonrecurring inplant materials costs and the EPG program.

There was no ECP0006-related evaluation of proposed nonrecurring costs, since none was proposed for the EPG program. Allocation of those costs on the same basis as the recurring inplant materials costs would have resulted in about $1.6 million (January 1975 dollars) being charged to

the EPG program. The amount would be closer to $2 million in Government then-year dollars.

General Dynamics expressed the view that the allocation method was considered appropriate by USAF and was in keeping with the U.S.-EPG Memorandum of Understanding.

Project office officials stated that the EPG program is being charged $470,000 per aircraft for recoupment of U.S. Government nonrecurring costs for the development and production of the F-16 aircraft. Further, they said that paragraph 60 b of section R of the Memorandum of Understanding specifically states that the EPG pro rata share of the nonrecurring costs will not exceed the amount of $470,000 per aircraft, including engines (in fiscal year 1975 dollars).

The project office, although requested, did not provide us with data to reasonably show that the inplant materials nonrecurring costs were the types of costs included in the derivation of the $470,000. While the Memorandum of Understanding might state that the EPG pro rata share of nonrecurring costs will not exceed $470,000 per aircraft, it appears that this is in reference to the cost incurred for research and development and full-scale development of the aircraft and engine, not to the costs in question.

The questioned costs are being charged to the USAF contract for its production contract but not the EPG program. If the questioned nonrecurring costs are not included in the $470,000, the EPG program is about $2 million understated and the USAF program is about $2 million overstated.

Subcontracts

There are 71 subcontracts accounting for $1.1 billion, or about 66 percent of the ECP0006 negotiated target cost. They include 42 first tier subcontracts (those awarded directly by General Dynamics) and 29 second tier subcontracts (those awarded by the first tier subcontractors). The following table summarizes these subcontracts.

Subcontract level	Subcontractor location		
	U.S.	Europe	Total
First tier	36	6	42
Second tier	-	29	29
Total	36	35	71

We reviewed 6 of the 71 subcontracts, including 5 with European companies and 1 with a U.S. company. We also reviewed two U.S. and one Canadian supplier. These contracts were valued at about $207.3 million, or about 18 percent of the value for the 71 subcontracts. The emphasis on European work reflects our primary objectives for reviewing F-16 coproduction, which were to assess the reasonableness of prices negotiated with European coproducers and to test our cooperative audit arrangements in Europe under Technical Agreement 1 of the F-16 Memorandum of Understanding.

All subcontracts under General Dynamics' prime contract were awarded for 998 aircraft quantities and were stated in January 1975 dollars. Our review of each selected subcontract covered the total award value.

Assessment--We found about $7.4 million (January 1975 dollars) of overpricing in the 998 aircraft values of the 5 European 998 ship set subcontracts reviewed. This represents about 3.6 percent of the combined values of those subcontracts and includes amounts identified at the two U.S. suppliers reviewed and the one Canadian supplier included in our audit coverage. Conversely, we identified no overpricing in the one U.S. subcontract reviewed. Stated in Government then-year dollars, the overpricing amounts to about $9.8 million of the negotiated ECP0006 subcontract costs before overhead and profit.

Overhead

Our evaluation disclosed no basis for considering other than fair and reasonable the negotiated overhead and general administrative expense rates and their applications to proposed costs. However, applying these rates to questioned costs results in materials overhead and general administrative expenses being overstated $0.9 million and $1.3 million, respectively.

Profit and incentive provisions

General Dynamics proposed ECP0006 on a fixed-price incentive basis with profit at 11 percent, a ceiling price at 114.42 percent of target cost, and a 70/30 (Government/contractor) sharing ratio for both overruns and underruns of target cost. USAF's negotiation objective for these provisions differed primarily in a greater spread between target cost and ceiling price (that is, 117.31 percent), and it reflected a lower target cost.

The total value of proposed costs led USAF to conclude that its ceiling price objective would be very near the

airframe not-to-exceed price guaranteed to EPG. It also concluded that a conventional fixed-price incentive arrangement would probably go over the not-to-exceed price. As a result, ECP0006 was negotiated with a 0/100 target cost overrun sharing ratio; the target price and ceiling price were the same; and a higher profit rate (14.57 percent) was allowed.

The total negotiated profit amounted to about $249 million, including about $51.3 million added when the overrun sharing ratio was changed to 0/100, making General Dynamics totally responsible for absorbing any target cost overrun. That change and keeping the target and ceiling prices the same made ECP0006 essentially a firm fixed-price contract, since there is a 70/30 sharing ratio for cost underruns. The added target profit was intended to compensate General Dynamics for the higher cost risk normally associated with firm fixed-price contracting.

Assessment--We believe the ECP0006 originally negotiated profit is as much as $3.2 million too high because of the overstated material costs, the unrecognized savings to be realized from the plant modernization program, and the overhead related to these costs.

We also noted that after ECP0006 negotiations, the overrun sharing ratio was changed from 0/100 to the originally proposed 70/30 ratio. This was done without reducing the $51 million previously added to the profit, even though General Dynamics would, in the event of an overrun, receive an increase in cost reimbursement. This is further discussed below.

UNWARRANTED LIBERALIZATION OF EPG CONTRACT COST OVERRUN PROVISION

ECP0006 was negotiated with a 0/100 target cost overrun sharing ratio (that is, 0 percent Government and 100 percent contractor), which effectively made ECP0006 a firm fixed-price contract. In consideration for the increased risk assumed USAF allowed General Dynamics an additional $51.3 million profit. The sharing ratio was subsequently changed, making the contractor responsible for only 30 percent of overruns without the Government's receiving any consideration in return. Based on General Dynamics' March 1980 cost overrun projections, we estimate the change will cost the Government an additional $13.3 million.

EPG program changes have been negotiated with a 70/30 sharing of target cost overruns and underruns and a ceiling price above target price. This is significant because

there is no practicable way to distinquish between costs associated with the basic ECP0006 tasks and most changes.

Key elements in an incentive pricing arrangement are target cost, target profit, target price, ceiling price, and sharing ratio for overruns and underruns of target cost. Upon contract completion, the Government and contractor negotiate the final price based on the actual cost incurred. If actual cost is more than target cost (an overrun), the contractor is paid actual cost plus target profit, decreased by his share of the overrun. An overrun increases the total price to the Government by its share of that overrun, but the total price payable by the Government is limited to the negotiated ceiling price. If actual cost exceeds the ceiling, then the ceiling price is the maximum paid and the contractor incurs a loss.

Change of overrun sharing ratio

Contract -0310 was modified, effective June 30, 1978, at the request of USAF, making a 70/30 cost overrun sharing ratio applicable to both the basic ECP0006 and changes. Although this reduced the contractor's share in cost overruns, USAF received no consideration for this change, such as a reduction in the $51.3 million of added target profit.

Contractor's financial risk reduced

The change in the overrun sharing ratio has subtly reduced the contractor's risk in the event of an overrun by creating the opportunity for more cost reimbursement than if 0/100 sharing had been retained. The added reimbursement results from two factors: (1) the change in the mechanics of calculating the overrun sharing and (2) the difference between the ceiling prices and target prices that have been negotiated into change orders.

Actual costs under ECP0006 and subsequent changes will be commingled, and the 70/30 sharing ratio will be applied to the total overrun, if any. Before the sharing ratio was changed, any target cost overrun related to the basic ECP0006 would have been absorbed 100 percent by General Dynamics. However, as a result of the change, the contractor now will bear only 30 percent of such overrun up to the combined ceiling price of ECP0006 and subsequent change orders.

The 70-percent difference in the contractor's overrun share generates the additional cost reimbursement. Stated another way, the contractor now gets reimbursed 70 cents out of each overrun dollar. This added reimbursement would be something less than 70 cents on each dollar, if the overrun

was so large that the ceiling price became a limiting factor. However, because of the difference between target price and ceiling price on change orders, a greater overrun is required before the ceiling price becomes a limiting factor. Until that point is reached, the contractor's actual reimbursement will continue to increase at 70 cents on each dollar overrun.

Increased Cost Reimbursement to General Dynamics under EPG Program Due to Overrun Sharing Change Based on Contractor's Projections as of March 30, 1980

	Targets				Ceiling price
	Cost	Percent	Profit	Price	
	(millions)		(millions)		
ECP0006	a/$1,828	98	$249	$2,077	$2,077
Changes	b/36	2	2	38	49
Total	c/$1,864	100	$251	$2,115	$2,126

	Amount (millions)
Contractor's projected overrun	d/$22.0
Contractor's cost recovery share based on revised 70/30 sharing ratio (.70 x $22)	$15.4
Maximum Government share in overrun ($2,126 - $2,115); that is, limited by ceiling price	$11.0
Contractor's cost recovery share based on original contract terms and allocating overrun to basic contract and change orders on basis of total estimated cost:	
Basic contract - (.98 x $22 = $21.6)	-
Changes (.02 x $22 = $.44 x .70)	-.3
Additional benefit to contractor due to ECP0006	10.7
Additional benefit to contractor due to radar change (see p. 14)	2.6
Total benefit to contractor due to change in sharing ratio	$13.3

a/Includes allocation of $117 million of economic price adjustment on a ratio of basic contract and change order cost estimates to total costs.

b/Includes allocation of $2 million of economic price adjustment on same basis as stated in footnote a.

c/Excludes radar subcontract, which was not part of ECP0006 negotiation and which is an identifiable cost.

d/Excludes projected radar cost overrun for the same reason stated in footnote c.

Radar costs

We also noted that the radar, which was negotiated independently of ECP0006 and whose costs are identifiable, is treated as a commingled change order under ECP0006. We believe the item should be accounted for independent of ECP0006 cost reimbursement calculations, as is done for the avionics intermediate shop change order because there is an incentive amount of about $10 million between the radar change order target price and ceiling price to absorb cost overruns. As of March 30, 1980, the commingling could result in about $2.6 million of ECP0006 cost overrun in excess of ceiling price being absorbed as a result of the radar change order as follows.

Description	Amount (millions)
Gross radar incentive	$10.0
Less projected radar cost overrun (.7 X $10.6 million)	7.4
Amount availabe to apply against projected $4.4 million of ECP0006 cost overrun in excess of ECP0006 ceiling price	$ 2.6

Assessment of contractor's comments

General Dynamics takes the position that, when contract terms, target and ceiling amounts, and sharing arrangements are considered in negotiating changes, General Dynamics does not benefit from the sharing arrangement change. Implicit in the contractor's view is that the first dollar of overrun was generated as a result of change orders; otherwise, some of it would have been applicable to the basic contract. Under the original 0/100 negotiated terms, none of the amount applicable to the basic ECP0006 would have been assumed by the Government. In our view, this assertion overlooks the facts presented. That is, when the total contractual arrangement is considered, General Dynamics will, in a cost overrun situation, benefit from the cost reimbursement procedures employed. Most simply, under the revised terms the Government will assume 70 cents of the first dollar of overrun. Accordingly, we find that General Dynamics' argument does not address the issue.

Assessment of project office comments

F-16 Project Office officials, like General Dynamics, did not respond to the issue raised. They addressed the basic contract provisions and subsequent changes as independent issues and failed to consider the collective effect of these actions. They specifically stated the sharing ratio was revised:

--To simplify the negotiation of change orders. (Since changes are negotiated simultaneously for all F-16 customers (USAF, EPG, and third countries), multiple sharing arrangements would make price negotiations difficult.)

--Because the contractor's accounting system does not provide for segregating costs between the basic award and changes, and creating such a system would be cost prohibitive and impractical.

USAF did acknowledge that it received no consideration for changing the contract terms.

USAF, without consideration, changed the terms of the contract in a manner which will allow General Dynamics, in a cost overrun situation, to be reimbursed money it would not otherwise have been entitled to. The actual benefit will depend upon the amount of overrun and the value of change orders. We estimated the benefit to the contractor to be $13.3 million at March 30, 1980. Accordingly, we believe USAF should (1) treat the change as void by adjusting contract documents to reflect the reversion to the original 0/100 cost overrun sharing ratio and negotiate a method for allocating cost overruns between basic ECP0006 and changes or (2) negotiate an equitable consideration from the contractor in return for the change to a 70/30 cost overrun sharing ratio on the basic ECP0006. We also believe USAF should require General Dynamics to account for the radar subcontract independent of ECP0006 for cost reimbursement purposes.

AIRFRAME SUBCONTRACTS--COPRODUCTION

We evaluated subcontracts awarded to eight EPG coproducers, which had a total value of $1.1 billion. For the most part, they were negotiated firm fixed-price subcontracts for the 998 aircraft program and were proposed in January 1975 dollars.

Our review of $207.3 million worth of these subcontracts showed that $199.9 million, or 96.4 percent, was reasonably priced. We consider $7.4 million, or 3.6 percent, to be overpriced. This amount excludes upper tier contractor's overhead and profit. All amounts in this section are stated in January 1975 dollars unless otherwise noted.

Airframe and Avionics Subcontracts Reviewed

Subcontractor/ coproducer	Amount	Overpriced Amount	Overpriced Percent	Reasonably priced Amount	Reasonably priced Percent
	(millions)			(millions)	
Raufoss	$ 5.3	-		$ 5.3	100.0
Nea Lindberg	15.5	-		15.5	100.0
Signaal	a/20.3	-		20.3	100.0
Eldec	b/2.9	-		2.9	100.0
Total	44.0	-		44.0	100.0
Kaiser	c/17.1	$1.0	3.7	c/16.1	94.1
Honeywell	b/6.9	.7	10.1	6.2	89.9
Canadian Marconi	b/2.7	1.5	55.6	1.2	44.4
Kongsberg	16.8	.7	4.2	16.1	95.8
Marconi Avionics	d/1.8	.2	11.1	1.6	88.9
SABCA (note e)	104.9	3.2	3.1	101.7	96.9
Per Udsen	13.1	.1	.8	13.0	99.2
Total	163.3	7.4		155.9	
Total	$207.3	f/$7.4	3.6	$199.9	96.4

a/Cost not included in ECP0006.

b/A part of these costs are included in Kongsberg's costs.

c/Excludes $15.5 million Nea Lindberg coproduction.

d/Represents cost of single component, not entire subcontract.

e/Societe Anonyme Belge de Constructions Aeronautiques.

f/This amount excludes $3.2 million of upper tier contractors' overhead and profit.

The subcontract prices are allocable to the program as follows:

USAF option price aircraft	250
EPG aircraft	348
Planned USAF aircraft	400
Total	998

While a portion of the subcontract costs will be charged to the 250 option price USAF aircraft, it was not the cost upon which the option price was established. Accordingly, any potentially defective pricing allocable to these aircraft would not be recoverable, and we have not considered it as defective pricing. Further, the overpricing allocable to the 400 planned USAF aircraft represents additional potential defective pricing if appropriate corrective action is not taken during future negotiations.

Assessment

We believe that about $6 million of the total $10.6 million overpricing (including upper tier contractors' loadings) that we identified is potentially defective within the definition of Public Law 87-653 because

--the Government contracting offices relied upon the subcontract prices as proposed by General Dynamics,

--the Government contracting offices had no knowledge of the overpricing, and

--the overpricing is attributed to data submitted by the prime contractor or subcontractor, which was not accurate, complete, or current.

The following schedule classifies the overpricing, including $3.2 million of upper tier contractors' overhead and profit, between that which we believe is potentially defective under Public Law 87-653 and that which we attribute to poor contracting practices.

Subcontractor	Overpricing		
	P.L. 87-653	Other	Total
	--------(millions)-------		
Kaiser	$1.24		$ 1.24
Honeywell	1.23		1.23
Canadian Marconi		$2.63	2.63
Kongsberg	1.06		1.06
Marconi	.25		.25
Societe Anonyme Belge	2.11	1.87	3.98
Per Udsen	.16		.16
Total	$6.05	$4.50	$10.55

Kaiser Aerospace and Electronics, Inc., of the United States

General Dynamics awarded a $32.6 million subcontract to Kaiser Aerospace and Electronics, Inc., for 998 radar/electro-optic display systems. Our analysis indicates it is overpriced by $1 million because the price negotiated was based on cost data provided by Kaiser that was not accurate, complete, or current.

Kaiser's proposal to General Dynamics included the cost of material to be used by its coproducer. The estimated cost of this material was based on unit quantities of 10, even though Kaiser had obtained lower quotes for unit quantities of 100, which were representative of the quantity for the planned procurement. Kaiser was aware that the planned buy involved 100 units but provided its coproducer a bill of materials based on 10-unit quantities. Kaiser advised the coproducer of only the quotes available for the 10-unit quantities. The cost difference between 10- and 100-unit quantities was about $800,000. The overall price increase to General Dynamics, considering Kaiser's overhead and profit, amounted to about $1 million. General Dynamics' loadings would increase the amount to about $1.24 million.

Assessment of contractor's comments

General Dynamics disagrees with our position on the basis that (1) Kaiser disclosed the existence and derivation of material cost estimates based on the high and low quantity vendor quotes to General Dynamics prior to negotiation of the subcontract price and (2) General Dynamics, in turn, disclosed this information to the Government.

We agree that General Dynamics was aware that the cost of the subject materials was overstated. Kaiser provided data which the coproducer relied upon and submitted back to Kaiser. Kaiser then passed a price which it knew was not based on accurate, current, and complete data on to General Dynamics.

However, in our opinion the documentation referenced by General Dynamics does not constitute complete disclosure to the Government because it would have required extraordinary effort to relate obscure statements in separate reports to identify the issue. Also, there appears to be no purpose in basing estimates on small quantity quotes since this is not the most relevant data. Further, USAF procurement officials stated they were unaware that Kaiser's coproducer's bills of materials were based on low quantity buy. General Dynamics stated that it is immaterial whether a

10-unit or 100-unit bill of materials was used, as either would be subject to adjustment. We believe this disregards the intent of Public Law 87-653; that is, that negotiations begin based on current, accurate, and complete data.

Kaiser expressed the view that, since the price it negotiated with Nea Lindberg represents the actual price to be paid by Kaiser, it would be impossible for the amount not to be accurate, complete, and current. This argument, similar to the one advanced by General Dynamics above, disregards the fact that negotiations must begin based on current, accurate, and complete data. Kaiser also stated that, although the only current quotes provided by Kaiser to Nea Lindberg were for 10 units, Nea Lindberg had sufficient pricing experience from earlier programs and prior F-16 proposals to make adjustments to the 10-unit material prices. Nea Lindberg, however, stated Kaiser provided the 10-unit bill of materials so late in the negotiation process that Nea Lindberg had to rely on it as the best information available.

Finally both General Dynamics and Kaiser asserted that information was clearly available to USAF, which disclosed the above issue. To develop the above issue, we had to recreate many Kaiser files from voluminous data. We also had to have numerous conversations with Nea Lindberg officials because the negotiations between Kaiser and Nea Lindberg were not clearly documented nor systematically recorded and filed at Kaiser or Nea Lindberg.

Honeywell, Inc., of the United States

Marconi Avionics, Ltd., a subcontractor to General Dynamics for the F-16 heads-up display, contracted with Honeywell, Inc., Minneapolis, Minnesota, in April 1977, for up to 1,200 rate sensor units at $5,789 per unit, or a total price of $6,946,800. This includes 430 rate sensor units for Marconi Avionics, Ltd.'s subcontractor/coproducer, Kongsberg.

Our review indicated that the price agreed to was about $589 per unit higher than supported by current, accurate, and complete cost or pricing data, or $706,800 higher for all units. Additions for overhead, general and administrative cost, and profit by Marconi and Kongsberg increase the amount to about $940,000, and General Dynamics' loadings increase the total overpricing to about $1.23 million.

Honeywell forwarded a proposal for rate sensor units dated June 18, 1975, to Marconi for both the full-scale development and the production programs that summarized

and took precedence over previous price communications between the two companies. A series of communications and meetings between Honeywell and Marconi followed, and ultimately contract 229/S/4664 was entered into on September 20, 1977, providing for the procurement of 1,200 units. The price as stated in January 1975 dollars was $5,789 per unit.

Honeywell provided us with the cost or pricing data used to develop the cost proposed to Marconi for the units. Our analysis of this data disclosed potential overpricing at $589 a unit. This is attributed to three cost elements as follows.

Description	Amount
Use of inappropriate labor rates	$ 316
Improper escalation of materials costs	71
Use of noncurrent data in estimating support costs	202
Total	$589

Labor costs

Honeywell proposed inappropriate rates in pricing labor hours. Honeywell stated in its proposal that it accepted the economic price adjustments set forth by General Dynamics and that the application of these adjustments for determining all prices quoted had a baseline of January 1, 1975. The labor rates Honeywell proposed, however, were average rates expected to be incurred during calendar year 1975.

Under the economic price adjustment clause included in the contract between Marconi and Honeywell, billing prices were to be increased or decreased to reflect price changes in five indexes published by the Bureau of Labor Statistics. The Bureau of Labor Statistics publishes a new value for these indexes each month. The beginning values used to measure changes in the contract price were those published by the Bureau for December 1974. Thus, price increases that occurred during 1975 would be provided for under the economic price adjustments called for under the contract, and Honeywell would benefit accordingly.

The difference between Honeywell's December 1974 labor rates and those estimated for calendar year 1975 amounted to $.60 per hour, or total overpricing of $316 per unit, including overhead and profit.

Material costs

Honeywell's proposal included a 6-percent increase on certain material costs to offset price increases that had occurred from about the time the cost data was compiled in January 1975 to the date of the submission of the proposal to Marconi in June 1975. Similar to the discussion above, Honeywell was not justified in increasing its proposal to reflect price increases for 1975. Such increases were to be covered by the economic price adjustment clause in the contract. Addition of this 6 percent to certain material costs resulted in an unjustified increase of $71 per unit, including overhead and profit.

Support costs

Honeywell's proposed support costs were not based on current data. Honeywell incurs costs for quality engineering, production engineering, design engineering, and continuing tooling to support its ongoing production programs. Honeywell estimated these costs by the application of a 30.8-percent support rate established in June 1974 to a cost base consisting of labor, burden, and materials. Six months later in December 1974, Honeywell forecasted a 25.4-percent support rate for 1975 based on more current information. Honeywell failed to update its June 18, 1975, proposal to Marconi to reflect the more current estimate. This overpricing of $202 per unit included overhead and profit.

Assessment of contractors' comments

Honeywell officials took the position that the cost data and certificate of current pricing was no longer binding because Marconi had not accepted the proposal to which the data and certification applied.

Although Honeywell never updated its June 1975 proposal, this proposal and supporting cost or pricing data formed the basis for subsequent negotiations and the price agreed to in September 1979. During negotiations, both Honeywell and Marconi made frequent reference to the data supporting the June 1975 proposal.

Marconi Avionics stated that the rate sensor unit was awarded to Honeywell as a result of price competition between Honeywell and two other potential sources. General Dynamics restated Marconi's position and added that awards based on price competition do not require certification of cost and pricing data.

The above argument is not consistent with the fact that Honeywell, an experienced and informed defense contractor, submitted cost and pricing data as well as executed a Certificate of Current Pricing when it submitted its June 10, 1975, proposal. At that time, Honeywell stated that the proposal summarized and took precedence over previous communications between the two companies on price, schedules, terms, and conditions and provided for option lot quantities totaling 751 units. Neither Honeywell nor General Dynamics indicated the two other potential competitive sources submitted proposals for the 751-unit buy. Further, the option quantities were subsequently increased to 1,200 units, and again no evidence exists that the other two potential competitors were resolicited. Accordingly, we do not believe the contract award can be considered to be based on adequate price competition.

Marconi Avionics, Ltd., England, and Canadian Marconi Company

Marconi Avionics, Ltd., England, a subcontractor to General Dynamics, awarded a $2.7 million (1975 Canadian dollars) noncompetitive contract to Canadian Marconi Company for printed circuit boards. Both companies are controlled by General Electric Company, Ltd., England. We were not able to directly evaluate the reasonableness of the price paid for these circuit boards because Marconi Avionics did not require Canadian Marconi to provide supporting cost or pricing data for its proposed price and because Canadian Marconi refused to allow us to review its cost records. However, based on prices paid by another firm for similar boards, we believe the contract with Canadian Marconi may be overpriced by as much as $1.5 million.

Canadian Marconi's contract provided for delivery of 9,980 printed circuit boards at a unit price of $220.35. Although no supporting cost or pricing data was available for our analysis, we did find that another firm procured similar boards for $74. Consequently, we, in effect, performed a price analysis. At our request, the Air Force Contract Administration Division at General Dynamics evaluated the drawings for these boards to determine their comparability. The engineers that made the comparison found the boards to be very similar in size and construction.

We discussed this difference in price with a senior official for Canadian Marconi. Since he could offer no explanation for this wide variance, we requested access to Canadian Marconi's cost records so that we could determine the basis for the original cost proposal. Our request

was denied. The "Examination of Records by Comptroller General" clause was not included in the subcontract, although required by 10 U.S.C. §2313. Therefore, we were unable to pursue the matter further with Canadian Marconi.

Had Marconi Avionics required Canadian Marconi to support its proposed price with cost or pricing data or attempted to compete the requirement, we believe the price of the circuit board could have been reduced substantially. A price of $74.00 a unit instead of the $220.35 paid could have resulted in a savings of about $1.5 million. Addition of upper tier contractors' overhead and profit would further increase this estimate to about $2.63 million.

Assessment of contractors' comments

Marconi Avionics officials objected to the negative impression they said had been created by our analysis of the Marconi Avionics/Canadian Marconi relationship. While acknowledging that the failure to obtain cost or pricing data did create a bad impression, they insisted that the relationship between the firms was an "arms-length" one. The only explanation offered for not obtaining competition was that they always buy circuit boards from Canadian Marconi. They also stated they did not believe the circuit boards could be produced anywhere in the world for one-third the price as we suggested. Marconi Avionics' Managing Director said that he was not going to use General Electric's 51-percent ownership of Canadian Marconi to force disclosure of its cost or pricing data because to do so would be meddling in the internal affairs of a Canadian firm.

General Dynamics considered our potential estimated price differential to be the crux of the issue. It does not believe our indication that Canadian Marconi's printed circuit boards may be costing three times more than similar Kaiser vendor printed circuit boards is reasonable. However, General Dynamics offered no satisfactory basis for its view. It should be noted, however, that when we asked General Dynamics to obtain Marconi Avionics' authorization to use Marconi's printed circuit boards to obtain a price estimate from Kaiser's vendor, Marconi Avionics declined.

The contractors' comments do not alter the fact that neither competition nor cost or pricing data was obtained to support the price paid for the circuit boards. Also, until the contractor seeks a broader base of competition or negotiates subcontracts based on audited cost or pricing data, there will be no assurance that reasonable prices are paid.

Kongsberg Vaapenfabrikk
of Norway

General Dynamics awarded a $61.1 million subcontract to Marconi Avionics, Ltd., England, for heads-up display sets. Marconi's subcontract included Kongsberg's, its coproducer, price for 430 sets. We believe the cost for these sets was increased about $1.1 million because General Dynamics did not require Marconi to update its proposal or to support the final negotiated price with current, accurate, and complete cost or pricing data. General Dynamics' loadings would increase the amount to about $1.3 million.

Overpricing

Marconi's proposal to General Dynamics included the cost of 998 low-voltage power supply units. Marconi proposed to purchase 568 units for $3,215 each direct from its U.S. supplier, Eldec Corporation, and 430 units, as a component of another assembly, for $4,243 each from Kongsberg Vaapenfabrikk, a Norwegian firm. On June 21, 1976, these prices were incorporated into a Memorandum of Agreement between General Dynamics and Marconi, setting forth a not-to-exceed price for the heads-up display unit. Provision was made for a price adjustment based on results of unresolved audit questions.

Although Marconi certified that its price for the display units was based on accurate, current, and complete cost or pricing data, it did not disclose to General Dynamics the variance in the amount included for the power supply units. Neither did General Dynamics' evaluation of Marconi's proposal disclose the variance. Further, prior to the agreement between Marconi and General Dynamics on a final price in June 1977, Marconi and Kongsberg negotiated a joint price for the power unit from Eldec for $2,950. This information was not disclosed to General Dynamics. Had this date been disclosed to General Dynamics, it would have had a sound basis for reducing the price paid Marconi for the heads-up display by about $1.1 million as follows:

Kongsberg	Price	Amount
Avg. price for power supply unit (3/5/76 proposal)	$4,243	
Joint purchase price (4/7/77)	2,950	
Overstatement per unit	1,293	
x 430 units		$ 555,990
x Kongsberg loadings (.2208 x $555,990)		122,763
Total		678,753
x Marconi loadings (.2584 x $678,753)		175,390
Total Kongsberg		854,143
Marconi		
Avg. price for power supply unit (4/30/76 proposal)	3,215	
Joint purchase price (4/7/77)	2,950	
Overstatement per unit	265	
x 568 units		150,520
x Marconi loadings (.3213 x $150,520)		48,365
Total Marconi		198,885
Total		$1,053,028

The Government could have benefited from the lower price for 775 units associated with aircraft for which firm prices had not been negotiated with General Dynamics as of November 17, 1977, the date General Dynamics reached a price agreement with Marconi.

Assessment of contractors' comments

Kongsberg officials stated that, although the facts we presented were accurate, all pertinent information had not been included. According to these officials, the Eldec price reductions were not reported because offsetting price increases by other vendors occurred during the same period of time. Kongsberg promised to show evidence of these offsetting price increases.

Kongsberg submitted supporting offset documentation to the Norwegian Defence Combined Materiel Agency on May 6, 1980. The agency concluded, however, that Kongsberg did not demonstrate that the claimed price increases were known prior to tne April 7, 1977, power supply unit price reduction date or the May 11, 1977, final price agreement date between Marconi Avionics and Kongsberg.

Marconi officials believe their prices are not overstated because the prices were current, accurate, and complete as certified in June 1976. Eldec extended price reductions for the power supply units in late 1976 (that is, after the June certification), and General Dynamics did not ask Marconi for another certification.

General Dynamics' position is that its June 21, 1976, Memorandum of Agreement with Marconi was legally sufficient to establish and document a price agreement. Therefore, General Dynamics does not consider Marconi Avionics a "prospective contractor" within the definition of Defense Acquisition Regulation 3-807.3(b) and therefore was not required to update the subcontractor's cost or pricing data up to the effective date (date of price agreement) of the prime contractor's certification to the Government. General Dynamics also pointed out that, while the price adjustment was subject to audit, the bill of materials was not.

We believe the June 21, 1976, Memorandum of Agreement was an open offer on the part of Marconi to General Dynamics and did not become a firm price agreement until June 1977 when a firm purchase order price was concluded. General Dynamics was not contractually obligated until the latter date. Although we recognize that an "agreement on price" can occur substantially prior to the formal execution of a subcontract, in our opinion, a not-to-exceed option price, which was open for a year and subject to limited audit and specifically provided that General Dynamics was under no obligation to accept any of the specified options, is not an "agreement on price" sufficient to avoid the requirements of 3-807.3(b) Defense Acquisition Regulation. On this basis, we believe that General Dynamics was required to update Marconi's bill of materials price to June 1977, the date of its final price agreement with Marconi. Its failure to do so resulted in including the cost of power supply units that was not based upon accurate, complete, or current data when it executed its November 17, 1977, Certificate of Current Pricing. Because the price was not updated, we believe General Dynamics' price for the heads-up display is potentially defective by about $1.1 million.

Societe Anonyme Belge de Constructions Aeronautiques of Belgium

General Dynamics awarded a subcontract to the Societe Anonyme Belge de Constructions Aeronautiques (SABCA) on August 31, 1976, at a firm fixed price of $105,896,188. The award, which was subject to audit adjustment, was subsequently reduced to $104,852,746.

SABCA's tasks include the final assembly of 174 F-16 aircraft and the manufacture of wing assemblies, wing-to-fuselage fairings, leading edge flap seals, and flaperon seals. The manufacturing work is performed at SABCA's Haren plant and final assembly at its Gosselies plant.

Assessment

The subcontract price was the result of three separate negotiations:

1. A precost stage in which General Dynamics and SABCA negotiated the total number of direct labor hours. (A compromise number of 5,050,000 represented about a 322,000 reduction of the proposal hours, which would equal about $1,700,000 exclusive of overhead and profit.)

2. A preaudit price proposal of $107,878,799 was negotiated down to the preaudit $105,896,188 subcontract price.

3. The postaward audit in which an additional $937,559 of costs and $103,131 of profit and $2,752 of the training price was negotiated out of the preaudit subcontract price.

We believe that the negotiated number of direct labor hours was fair and reasonable. However, we believe the subcontract is overpriced by about $3.2 million, primarily due to General Dynamics' inability to negotiate a price supported by the subcontractor's cost or pricing data. Additional reasons were judgments that were not consistent with available data and analytical errors. The latter amounted to about $623,000. With General Dynamics' loadings, the overpricing would increase to $3.9 million. The following areas are involved.

Area	Amount	Amount
Direct labor rates		$1,021,063
Indirect expenses		1,541,145
Other expenses:		
Indirect labor	$ 832,258	
Direct labor fringe benefits	-1,298,260	
Indirect labor social changes	521,529	
Depreciation normal	160,326	215,853
Contingency		71,296
Unaccounted errors		56,374
Total		$2,905,731
Profit		309,823
Total		$3,215,554

Our assessment is atypical in this case in that we have considered amounts that General Dynamics recognized as questionable but did not sustain during negotiations to be potential defective pricing. We found no evidence that General Dynamics asked (1) the Belgian Audit Agency to reassess its position in view of Defense Contract Audit Agency findings of excessive pricing, which were similar to its own findings, or (2) USAF to intervene when the contractor, in effect, refused to negotiate. More important, we found no evidence that General Dynamics disclosed this situation, which had a material impact on price, to USAF. While SABCA did accept a negotiated cost reduction of its proposed hours and preaudited cost, it was only willing to accept the Belgian Audit Agency auditor's questions for the postaudit negotiation. The only item questioned by the Begian Audit Agency was a $1,009,738 contingency to provide for escalation. This was clearly unallowable because escalation is already provided for as a separate item in the contract.

While the Defense Contract Audit Agency and General Dynamics made an extensive analysis and identified additional excessive pricing, General Dynamics, in our opinion, did not even eliminate all of the proposed contingency during its postaudit negotiations, nor did it advise USAF of this matter when it certified that its price was based upon current, accurate, and complete data. The following are our views on the cost areas questioned.

Direct labor rates

SABCA originally proposed $26,594,605. The Belgian Audit Agency accepted these costs as proposed. The Defense

Contract Audit Agency questioned $2,931,725 in direct labor costs based on 1975 actual average wage rates. It deescalated these average rates using the full year's deescalation factor, which overstated deescalation and questioned costs because the factor was applied to midyear rates rather than yearend values.

General Dynamics negotiated a preaudit downward adjustment of $23,606 and had $977,528 of postaudit cost questions. The latter amounts were also developed using average actual wage rates of 1975. While General Dynamics properly applied a factor representing only one-half year's deescalation, it made two errors in its analysis--a mathematical error in calculating the deescalation factor and the use of 1975 actual wages data for a department which has no F-16 activity. This incorrect deescalation factor was used throughout General Dynamics' evaluation.

Correcting the errors would have increased General Dynamics' questioned costs about $43,140 making its direct labor questioned costs $1,021,063. Although none of the questioned costs were supported by the subcontractor's cost data, we believe the full amount was included in the final negotiated price.

Indirect expenses

Indirect expenses were proposed at $13,401,099 and were not deescalated. They included rent, maintenance, and furnishings (heat, power, water, and so forth). The Belgian Audit Agency accepted indirect expenses as proposed.

The Defense Contract Audit Agency questioned $2,429,947 of indirect expenses. The auditors assumed that actual 1975 expenses would be the maximum incurred in 1976, since there was a budgeted indirect personnel decrease. They deescalated the 1975 indirect expense by department, using the factor developed by SABCA. The Defense Contract Audit Agency's deescalation method as stated earlier caused its questioned costs to be too high.

General Dynamics did not question any indirect expenses, partly due to a mistake in transferring the amount proposed from one worksheet to another. Correction of the error would have resulted in questioned indirect expenses of $452,146. Otherwise, the major difference from the Defense Contract Audit Agency's analysis was a business volume adjustment based on the 31.8-percent increase between 1975 actual direct labor hours and 1976 budgeted hours. The adjustment was applied to a portion of 1975 actual indirect expenses judgmentally assumed by General Dynamics to be variable expenses.

Our analysis showed that about $1,541,145 in indirect expenses should have been questioned. This primarily includes $1,505,667 to eliminate General Dynamics' business volume adjustment. General Dynamics judgmentally determined that a portion of SABCA's indirect expenses varied with direct labor hours and increased SABCA's proposed 1976 indirect expenses to consider a budgeted 1976 direct labor hour increase over the 1975 actual direct labor hours. Defense Contract Audit Agency and Belgian Audit Agency officials said that General Dynamics' action was inappropriate because the difference was due to underactivity and a long strike near the end of 1975. Further, SABCA budgeted 1,730,000 direct labor hours for 1975 compared to 1,783,615 budgeted for 1976, which is not a large increase. We believe General Dynamics' business volume adjustment was inappropriate for the following reasons:

--SABCA's budgeted direct labor hours for 1975 and 1976 were essentially the same and indicated no expected change in business volume.

--Actual 1975 hours were unexpectedly low because of a strike, but actual indirect expenses were only .2 percent below those budgeted for 1975. Therefore, they did not vary directly with labor hours as assumed by General Dynamics.

--SABCA's 1976 budgeted indirect expenses (converted to 1975 yearend values) were only 2.1 percent higher than the 1975 budgeted amount.

There was no postaudit negotiated reduction to this cost element. We believe the $1,541,145 was not based on the most accurate, complete, or current data available.

Other expenses

The remaining four expense categories are indirect labor, direct labor fringe benefits, indirect labor fringe benefits, and normal depreciation. SABCA originally proposed a total of $49,693,275 for these items. General Dynamics' preaudit negotiation reduced it by $40,091 to $49,653,184. The Belgian Audit Agency accepted the amounts proposed, while the Defense Contract Audit Agency and General Dynamics questioned costs of $3,651,162 and $422,049, respectively, prior to price negotiations. Although none of the questioned costs was supported by the subcontractor's cost data, we believe the full amount was included in the final negotiated price.

We believe only $215,853 of these costs should have been questioned. Costs questioned by the Defense Contract Audit Agency were too high in general due to the deescalation factor used. Deescalation was the primary difference between General Dynamics' and our questioned costs.

Contingency

SABCA proposed a 20-cent-per-hour contingency totaling $1,009,738 to provide for uncertainties related to escalation. The entire contingency was questioned by the Belgian Audit Agency, the Defense Contract Audit Agency, and General Dynamics because escalation was to be negotiated separately.

General Dynamics did not prepare any written description of the give-and-take discussions leading to the audit resolution. According to General Dynamics' price negotiation memorandum, SABCA agreed to a total contract cost reduction of $940,038 ($1,043,442 including an 11-percent profit), which was realized through negotiation trade-offs. Those trade-offs were not discernible through discussion or document review.

The adjustment was not broken out by cost element. Instead, General Dynamics distributed the reduction on an equal per-hour basis against the negotiated price for each major work task, including training, which was not subjected to audit. The basic tasks were reduced by $1,040,690 ($937,559 cost and $103,131 profit), while training was reduced by $2,752. The subcontract price after audit adjustment was $104,852,746.

We believe the net effect of the audit adjustment is that General Dynamics accepted SABCA's costs as proposed, except for a partial reduction of the identified contingency. Contingency was the only item proposed on an equal per-hour basis, and this was the method used by General Dynamics for distributing the total negotiated adjustment. Accepting this premise, the audit adjusted price still includes about $71,296 contingency computed as follows.

Contingency cost included in original proposal	$1,009,738
Less preaudit adjustment	-883
Contingency included in preaudit purchase order	1,008,855
Less postaudit negotiated cost reduction (except for $2,479 applied against training)	-937,559
Amount of contingency cost included in adjusted (audited) purchase order price	$ 71,296

Unaccounted errors

The Defense Contract Audit Agency audit disclosed a $56,410 overstatement of proposed costs due to an unreconcilable difference between the rates proposed by SABCA and details of those rates provided to the auditors. General Dynamics reduced the amount by $36 to $56,374 during its preaudit negotiation. General Dynamics did not include this item in questioned costs, but it assumed any such errors were corrected in its analysis.

By following the Defense Contract Audit Agency evaluation format, the amount associated with unaccounted errors was excluded from General Dynamics' calculations and therefore must be added to any questioned costs.

Profit

As stated earlier, SABCA proposed a 13-percent profit rate. It was comprised of the 10-percent normal profit established by Belgian law for contracts with the Belgian Defense Ministry and 3 percent added by SABCA for the extra industrial and contractual risk of doing business with a non-Belgian firm.

Both the Belgian Audit Agency and Defense Contract Audit Agency accepted the proposed rate but concluded that profit is a matter for negotiation between the contracting parties.

General Dynamics negotiated an 11-percent profit rate.

We believe the negotiated profit rate is reasonable, particularly when considering it is a firm fixed-price subcontract. Applying the 11-percent profit rate to our adjusted costs of $91,097,758 yields a profit of $10,020,734 or

$309,823 less than the $10,330,557 profit allowed by General Dynamics.

Assessment of contractors' comments

General Dynamics' officials agreed with our findings in regard to computational errors. They also pointed out that a $1,043,422 price reduction was negotiated to recognize the audit results. According to General Dynamics' officials, SABCA's position during the negotiations for adjustment was that it is a Belgian national firm and would be bound only by the Belgian Audit Agency audit findings. As a result, General Dynamics' officials said they were limited to a negotiation position approximating the costs questioned by the Belgian auditors.

In response to our draft report, General Dynamics stated that our assertion that its failure to achieve all of its negotiation objectives constitutes defective pricing demonstrates a misunderstanding of the difference between cost and pricing data and judgmental factors. They also stated that, while the draft report alleges there was defective pricing, it does not state in what respect the data submitted was not accurate or current and in what respect data was available to SABCA that was not submitted.

We believe the report clearly sets forth the data considered to be inaccurate. (See p. 29.) The issue is that the amount determined to be accurate, in this instance the negotiation objective, was not negotiated.

These are not issues of judgment between General Dynamics and SABCA but a matter of having the negotiated price based on accurate, current, and complete data. Because SABCA would not consider negotiating issues other than those reported by the Belgian Audit Agency auditors, General Dynamics, in effect, accepted the SABCA price, which it knew or should have known was based on inaccurate data. The SABCA subcontract price was subsequently included in General Dynamics' proposal as a subcontract cost and was certified to be based on accurate, current, and complete data.

We believe the failure of General Dynamics to specifically advise USAF of SABCA's unwillingness to negotiate precluded USAF from attempting corrective action and caused it to rely on a price that was not based on accurate, complete, or current data. Thus, it is General Dynamics' failure to make critical information known to USAF that in our judgment renders General Dynamics' price subject to possible downward adjustment under Public Law 87-653. Moreover,

General Dynamics was not aware of the $452,146 error referred to on page 29 until we called it to their attention.

We believe the price should have been about $3.2 million less, which we primarily attribute to errors in analysis and the failure of SABCA to negotiate cost questions raised by anyone except the Belgian Audit Agency. We believe General Dynamics did not negotiate a fair and reasonable price due to its acquiescence to SABCA's position that only the Belgian national auditors' findings were acceptable. Further, the $3.2 million is potentially defective under Public Law 87-653 because the final price was not based on accurate, complete, or current data, and this was not made known to the U.S. contracting officer. Also, the amount increases to about $3.98 million when General Dynamics' loadings are added.

The Per Udsen Company of Denmark

General Dynamics awarded a subcontract to Per Udsen on July 15, 1976, at a firm fixed not-to-exceed price of $13,543,53[illegible] for the fabrication (assembly) of vertical fin boxes and fuel/weapon pylons. The award was subject to audit and was subsequently adjusted downward to $13,125,904. We believe this price was about $127,000 higher than supported by current, accurate, and complete cost or pricing data. Other direct costs and general and administrative expenses were overstated by about $12,000 and $101,000, respectively. Per Udsen's profit on these overstated costs amounted to about $14,000. General Dynamics' loadings increase the amount to $165,000.

Other direct costs

General Dynamics negotiated $4,897,739 for other direct costs. The Defense Contract Audit Agency and the F-16 Danish Audit Group auditors questioned $1,955 of preproduction travel costs. Per Udsen concurred with the auditors' position, but General Dynamics included those costs in the final negotiated price. Also, certain costs taken directly from Per Udsen's June 3, 1977, proposal were not deescalated to January 1975 dollars, causing a $9,998 overstatement of negotiated costs.

General and administrative expenses

Negotiated general and administrative expenses totaled $1,858,873. Rates proposed were based on actual 1975 expenses, which differed from those provided earlier to the

auditors. The differences were identified and appeared reasonable; however, the actual expense amounts were not deescalated to January 1975 dollars.

We deescalated the actual 1975 expenses and recalculated the general and administrative expense rates. When applied to negotiated costs, adjusted for the minor overstatements in other direct costs, the result was a reduction of about $101,350.

Assessment of contractor's comments

General Dynamics' officials generally agreed with our findings of fact but disagreed that there is any potential defective pricing because the complete Per Udsen data submittal had been provided to USAF. We do not believe the submission of data which General Dynamics has certified as being accurate, complete, and current relieves General Dynamics from responsibility for the data when it is subsequently determined to be other than accurate, complete, and current. General Dynamics certified that the proposed costs were stated in base-year January 1975 dollars. This is significant because the contract provides for escalating the base-year dollars. The failure to deescalate or to properly deescalate proposed amounts, which is the point at issue, results in inaccurate, underescalated proposed amounts. We therefore conclude that the subcontract price provided to USAF was not based on current, accurate, or complete data and that it is potentially defective under Public Law 87-653.

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